Growth performance and disease resistance towards Aeromonas hydrophila in Hemibagrus nemurus (Valenciennes, 1840) fingerlings through probiotic feeding

ABSTRACT

A study was carried out to evaluate the probiotic activity of Bacillus subtilis G1 isolated from fermented pickles in growth performance and disease resistance of Hemibagrus nemurus fingerlings at Universiti Putra Malaysia. The probiotic was mixed in feed at doses of 0 (C, control), 3 x 109 (T1) 3 x 107 (T2) and 3 x 105 (T3) cfu g-1 and fed to the catfish fingerlings for nine weeks. Results showed that catfish fed a diet containing 107 cfu g-1 B. subtilis G1 had significantly higher percent weight gain (248.69 ± 3.31%), and better food conversion ratio (1.68 ± 0.03), than those of other treatments. Inhibitory activity of the probiotic B. subtilis G1 against fish pathogens Aeromonas hydrophila and Streptococcus agalactiae was evaluated by well diffusion agar method. Inhibition zones measured showed A. hydrophila and S. agalactiae were 16.13 ± 0.91 mm and 17.5 ± 1.84 mm, respectively, indicating strong inhibitory activity against the pathogens. Three weeks after the feeding trial, the fingerlings were challenged with 0.1 ml containing 106 cfu ml-1 of A. hydrophila by intra-peritoneal injection. After 14 days, the mortality rate of catfish was significantly lower in group T1 (30 ± 5.8%) compared to the control (C) group (56.7 ± 3.3%). The findings of this study proved that administration of B. subtilis G1 can improve growth and disease resistance in catfish.

Keyword: Hemibagrus nemurus; Probiotic; Growth performance; Disease resistance; Aeromonas hydrophila